

B1 (c) inducing an antigen-specific immune response in said organism.

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B2 14. (Amended) A method of claim 1, wherein the antigen and the adjuvant are provided as separate components of the formulation.

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B3 37. (Amended) A method of claim 1, wherein the induced immune response recognizes at least one protein antigen of a bacterium.

38. (Amended) A method of claim 1, wherein the induced immune response recognizes at least one protein antigen of a virus.

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41. (Amended) A method of claim 1, wherein the antigen is provided as at least one polynucleotide encoding said antigen in whole cell form selected from the group consisting of live microbes, attenuated microbes, and inactivated microbes.

B4 42. (Amended) A method of claim 1, wherein the antigen is provided as at least one polynucleotide encoding said antigen in a viral particle or virion form selected from the group consisting of live viruses, attenuated viruses, and inactivated viruses.

43. (Amended) A method of claim 1, wherein the antigen is provided as at least one polynucleotide encoding said antigen in a whole-cell form selected from the group consisting of live bacteria, attenuated bacteria, and inactivated bacteria.

44. (Amended) A method of claim 1, wherein the antigen is provided as at least one polynucleotide encoding said antigen in a cell-free form.

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Kindly enter the following new claims.

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B5 117. (New) A method of inducing a systemic immune response, comprising topically administering a polynucleotide encoding antigen, adjuvant or both to skin of an organism without penetrating past dermis; wherein an effective amount of the antigen,

adjuvant or both is expressed by an operably-linked regulatory region derived from a viral genome to induce said systemic immune response in said organism.

118. (New) The method of claim 117, wherein the polynucleotide is topically administered on shaved skin of said organism.

119. (New) The method of claim 117, wherein the polynucleotide is in a plasmid.

120. (New) The method of claim 117, wherein the operably-linked regulatory region is derived from an adenovirus genome.

121. (New) The method of claim 117, wherein the polynucleotide encodes antigen or an immunogenic epitope thereof.

BS 122. (New) The method of claim 117, wherein the antigen or immunogenic epitope thereof is expressed to produce a systemic immune response against a pathogen or cancer.

123. (New) The method of claim 117, wherein the antigen or immunogenic epitope thereof is expressed to produce a systemic immune response against a tumor antigen.

124. (New) The method of claim 117, wherein the systemic immune response is a protective systemic immune response.

125. (New) The method of claim 117, further comprising delivering the polynucleotide with a device topically applied to the skin of the organism.

126. (New) The method of claim 125, wherein the device includes a patch.

127. (New) The method of claim 125, wherein the device includes an adhesive backing.